

PRELIMINARY DESCRIPTION OF SOME NEW *LYSTROSAURI*.

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THE *Lystrosaurus* material in the Transvaal Museum has steadily increased of recent years, and its collections now contain some forty developed skulls of this genus. The peculiarities of many of these specimens and the new forms were not made known before, because it was thought better to acquire a good many specimens before giving any description. The collection has now grown to such an extent, however, that longer delay of discussion would not find justification in lack of material. On the other hand, the character of most of the descriptions of the known forms is such, that identification of *Lystrosaurus* material without the aid of the type specimens is nearly impossible. It seems that a revision of the genus is a pressing necessity. As this could not be undertaken by me at present only two other ways remained, namely, either to abandon the idea of describing our material or to do it with a great risk of producing synonyms. The latter way was chosen, and care was taken to reduce this risk to a minimum. A preliminary description is hereby given of new forms in the collection. A description in *extenso* may be expected in a short time.

Lystrosaurus Breyeri, n. sp.

Relatively much narrower between the outer edges of the prefrontals than *latirostris*. *Declivis* and *platyceps* are relatively broader and *Alfredi* narrower in the parietal region. *Murrayi* is relatively narrower and as in *verticalis* the distance of the septomaxillary from the oral edge is relatively much greater. In *loops*, on the other hand, this distance is much smaller compared with the breadth over the prefrontals. The breadth between the edges of the prefrontals in *frontosus* greatly exceeds the length of the premaxillary. In *Breyeri* the premaxillary is longer than the prefrontal breadth. *Andersoni* and *Mccaiqi* are much narrower between the hinder upper corners of the orbital rims. *Putterilli* is relatively broader between the upper corners of the orbital rims and much broader in the parietal region.

The above has been gathered from the following measurements:—

1. Length of the premaxillary..... 67 mm.
2. Distance from the front end of the septomaxillary to the oral edge..... 39 mm.
3. Greatest breadth between the outer edges of the prefrontals..... 64 mm.
4. Breadth between the hinder upper corners of the orbital rims..... 44 mm.
5. Breadth between the parietal ridges over the parietal foramen..... 15 mm.
6. Breadth of the snout at upper end of canine ridges. 58 mm.

Lystrosaurus Jorisseni, n. sp.

The specimen has suffered somewhat from lateral compression. The measurements of the breadth over the prefrontals and between the orbital rims have therefore been corrected as far as possible. The breadth over the prefrontals is much greater than the length of the premaxillary in *latirostris*, whereas in *Jorisseni* the reverse is the case. While the premaxillary of our form is much shorter, the parietal region appears to be absolutely broader than in *declivis*; moreover, this species is relatively broader between the orbital rims. *Alfredi* and *Breyeri* are broader over the prefrontals and much narrower over the parietals. *Murrayi* is relatively much narrower over the prefrontals. The snout of *verticalis* is relatively much longer, and compared with the breadth over the prefrontals, this is also the case with *boops*. *Frontosus*, *Andersoni*, *Mccaigi*, and *Putterilli* as with *Breyeri*. The snout of *platyceps* is relatively broader than in *Jorisseni*. Measurements (for the meaning of the figures see description of *Breyeri*): **1**, 73 mm.; **2**, 36 mm.; **3**, 62 mm.; **4**, 42 mm.; **5**, 25 mm.; **6**, 65 mm.

Lystrosaurus Jeppei, n. sp.

This is a remarkably broad and low skull. It has suffered from vertical crushing, and, as a consequence, the measurement of the length of the premaxillary had to be corrected. *Jeppei* has the same breadth in the parietal region as the much bigger *latirostris*, and is therefore relatively much broader. Although its premaxillary is much shorter, *Jeppei* is even absolutely broader in the parietal region than *declivis*. *Alfredi* and *frontosus* are broader over the prefrontals. *Alfredi* is, moreover, narrower between the parietal ridges, and *platyceps* is relatively broader. The orbital cavity of *platyceps* is also relatively much larger than that of *Jeppei*. The following forms are relatively narrower over the prefrontals than *Jeppei*: *Murrayi*, *boops*, *Putterilli*, *Breyeri*, and *Jorisseni*. The snout of *boops* and *verticalis* is longer. *Andersoni* and *Mccaigi* are relatively much narrower between the upper posterior corners of the orbital rims. *Breyeri* and *Jorisseni* have also a much longer snout.

Measurements: **1**, 57 mm.; **2** (not taken into consideration at present); **3**, 68 mm.; **4**, 48 mm.; **5**, 22 mm.; **6**, 78 mm.

Lystrosaurus Theileri, n. sp.

This skull is very much damaged, the premaxillary having been wrenched away from its original position and now being situated some 4 cm. in front of the maxillaries. The whole of the skull top, however, is very well preserved. The preparietal is seen to be a narrow elongated bone, unlike the shape of this bone in known *Lystrosauri*. The suture between the frontals and the nasals is bent sharply backwards along the median line, the nasals cutting deeply into the front edge of the frontals. This also is contrary to the condition of this suture in all other *Lystrosauri* where it is known. *Declivis*, *latirostris*, and *Alfredi* are all relatively much broader over the prefrontals. *Boops* is narrower over the parietals and has a much narrower snout. *Frontosus* is relatively narrower over the prefrontals. *Andersoni* is relatively broader between the upper posterior

corners of the rims of the orbital cavity. *Breyeri* is narrower over the parietals. *Jorisseni* and *platyceps* are broader over the parietals. *Platyceps* and *Jeppe* have a much broader snout. In *Putterilli* the pre-parietal is nearly round. A comparison with *Mccaigi* is nearly impossible. The exact length of the premaxillary of *Theileri* cannot be obtained as the bone is damaged. An estimate of its length gives 63 mm. This means that the premaxillary is as long as the skull is broad over the prefrontals. In *Mccaigi* the premaxillary is more than twice as long as the breadth of the skull over the prefrontals. Comparison with *Murrayi* and *verticalis* was quite impossible. The few measurements which are known of these skulls could not be compared with measurements in *Theileri*, and no specific peculiarities have been made known.

Measurements: 1, 63? mm.; 3, 65 mm.; 4, 44 mm.; 5, 22 mm.; 6, 66 mm.

Lystrosaurus Wagneri, n. sp.

The specimen has suffered slightly from vertical pressure, and as a result the regions between the eyes and the nostrils and the squamosa are broken. *Wagneri* is relatively much narrower between the upper hinder corners of the orbital rims than *latirostris*, *declivis*, *Alfredi*, *depressus*, *Breyeri*, *Jeppe*, *Putterilli*, and *Theileri*. The snout of *Wagneri* is relatively much broader than that of *latirostris*, *declivis*, *Alfredi*, *boops*, and *Breyeri*. The premaxillary of *Murrayi* and *boops* is relatively much longer and that of *verticalis* much shorter than in *Wagneri*. *Frontosus* is much broader and *Jorisseni* and *Theileri* are narrower over the prefrontals. *Wagneri* is much narrower over the parietals than *platyceps*, *Putterilli*, *Jorisseni*, *Jeppe*, and *Theileri*. It is broader than *Andersoni* and *Mccaigi* between the upper hinder corners of the orbital rims.

Measurements: 1, 67 mm.; 2, 34 mm.; 3, 71 mm.; 4, 42 mm.; 5, 17 mm.; 6, 80 mm.

Lystrosaurus Wageri, n. sp.

A small skull which has suffered much from vertical pressure. In the uncrushed specimen the parietal region should be broader and the frontal region narrower. *Wageri* is relatively much broader over the parietals than *latirostris*, *declivis*, *Alfredi*, *depressus*, *Murrayi*, *boops*, *Putterilli*, *Breyeri*, *Jeppe*, *Theileri*, and *Wagneri*. The nostrils of *Wageri* are much nearer to the oral edge than those of *verticalis*. The premaxillary of *Murrayi* is relatively much longer than that of *Wageri*. *Frontosus* is much broader over the prefrontals. The pre-parietal of *Wageri* is long and sharp-pointed in front, whereas that of *platyceps* is very broad in front. The snout of *Wageri* is relatively broader than that of *Andersoni*. *Wageri* is relatively broader than *Mccaigi* between the upper hinder corners of the orbital rims and narrower than *Jeppe*. It is also relatively broader than *Putterilli* and *Jorisseni* over the prefrontals.

Measurements: 1, 37 mm.; 2, 15 mm.; 3, 45 mm.; 4, 27 mm.; 5, 18 mm.; 6, 49 mm.